Electronic Version
Stylesheet Version v1.1.1

[METHOD AND APPARATUS FOR HIGH-VOLTAGE SWITCHING OF ULTRASOUND TRANSDUCER ARRAY]

Abstract

A high-voltage switching circuit comprising: a switch having ON and OFF states and having a parasitic gate capacitance and a control circuit for turning the switch on and off. The switch comprises a pair of DMOS FETs having a shared gate terminal, the sources of the DMOS FETs being connected to each other and the drains of the DMOS FETs being connected to the input and output terminals of the switch respectively, and biased at a bias voltage level. The control circuit comprises: a programming transistor having its drain connected to the shared gate terminal of the switch, its source connected to receive a programming voltage, and its gate connected to receive a programming transistor gate voltage; first circuitry for causing a first transition from a first level to a second (lower) level of the programming voltage; and second circuitry for causing a second transition from a first level to a second level of the programming transistor gate voltage. The second level of the programming voltage is higher than the bias voltage level by an

amount sufficient to turn on the switch. The first level of the programming transistor gate voltage is approximately equal to the first level of the programming voltage, and the second level of said programming transistor gate voltage is lower than the second level of the programming voltage by an amount sufficient to turn on the programming transistor, whereby the second level of the programming voltage is applied to the shared gate terminal of the switch via the programming transistor.